| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Reference.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/javax/naming/RefAddr.html)   [**NEXT CLASS**](http://docs.google.com/javax/naming/Referenceable.html) | [**FRAMES**](http://docs.google.com/index.html?javax/naming/Reference.html)    [**NO FRAMES**](http://docs.google.com/Reference.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#3znysh7) | [CONSTR](#2et92p0) | [METHOD](#tyjcwt) | DETAIL: [FIELD](#1t3h5sf) | [CONSTR](#26in1rg) | [METHOD](#2jxsxqh) |

## **javax.naming**

Class Reference

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 **javax.naming.Reference**

**All Implemented Interfaces:** [Serializable](http://docs.google.com/java/io/Serializable.html), [Cloneable](http://docs.google.com/java/lang/Cloneable.html) **Direct Known Subclasses:** [LinkRef](http://docs.google.com/javax/naming/LinkRef.html)

public class **Reference**extends [Object](http://docs.google.com/java/lang/Object.html)implements [Cloneable](http://docs.google.com/java/lang/Cloneable.html), [Serializable](http://docs.google.com/java/io/Serializable.html)

This class represents a reference to an object that is found outside of the naming/directory system.

Reference provides a way of recording address information about objects which themselves are not directly bound to the naming/directory system.

A Reference consists of an ordered list of addresses and class information about the object being referenced. Each address in the list identifies a communications endpoint for the same conceptual object. The "communications endpoint" is information that indicates how to contact the object. It could be, for example, a network address, a location in memory on the local machine, another process on the same machine, etc. The order of the addresses in the list may be of significance to object factories that interpret the reference.

Multiple addresses may arise for various reasons, such as replication or the object offering interfaces over more than one communication mechanism. The addresses are indexed starting with zero.

A Reference also contains information to assist in creating an instance of the object to which this Reference refers. It contains the class name of that object, and the class name and location of the factory to be used to create the object. The class factory location is a space-separated list of URLs representing the class path used to load the factory. When the factory class (or any class or resource upon which it depends) needs to be loaded, each URL is used (in order) to attempt to load the class.

A Reference instance is not synchronized against concurrent access by multiple threads. Threads that need to access a single Reference concurrently should synchronize amongst themselves and provide the necessary locking.

**Since:** 1.3 **See Also:**[RefAddr](http://docs.google.com/javax/naming/RefAddr.html), [StringRefAddr](http://docs.google.com/javax/naming/StringRefAddr.html), [BinaryRefAddr](http://docs.google.com/javax/naming/BinaryRefAddr.html), [Serialized Form](http://docs.google.com/serialized-form.html#javax.naming.Reference)

| **Field Summary** | |
| --- | --- |
| protected  [Vector](http://docs.google.com/java/util/Vector.html)<[RefAddr](http://docs.google.com/javax/naming/RefAddr.html)> | [**addrs**](http://docs.google.com/javax/naming/Reference.html#addrs)            Contains the addresses contained in this Reference. |
| protected  [String](http://docs.google.com/java/lang/String.html) | [**classFactory**](http://docs.google.com/javax/naming/Reference.html#classFactory)            Contains the name of the factory class for creating an instance of the object to which this Reference refers. |
| protected  [String](http://docs.google.com/java/lang/String.html) | [**classFactoryLocation**](http://docs.google.com/javax/naming/Reference.html#classFactoryLocation)            Contains the location of the factory class. |
| protected  [String](http://docs.google.com/java/lang/String.html) | [**className**](http://docs.google.com/javax/naming/Reference.html#className)            Contains the fully-qualified name of the class of the object to which this Reference refers. |

| **Constructor Summary** | |
| --- | --- |
| [**Reference**](http://docs.google.com/javax/naming/Reference.html#Reference(java.lang.String))([String](http://docs.google.com/java/lang/String.html) className)            Constructs a new reference for an object with class name 'className'. |
| [**Reference**](http://docs.google.com/javax/naming/Reference.html#Reference(java.lang.String,%20javax.naming.RefAddr))([String](http://docs.google.com/java/lang/String.html) className, [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) addr)            Constructs a new reference for an object with class name 'className' and an address. |
| [**Reference**](http://docs.google.com/javax/naming/Reference.html#Reference(java.lang.String,%20javax.naming.RefAddr,%20java.lang.String,%20java.lang.String))([String](http://docs.google.com/java/lang/String.html) className, [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) addr, [String](http://docs.google.com/java/lang/String.html) factory, [String](http://docs.google.com/java/lang/String.html) factoryLocation)            Constructs a new reference for an object with class name 'className', the class name and location of the object's factory, and the address for the object. |
| [**Reference**](http://docs.google.com/javax/naming/Reference.html#Reference(java.lang.String,%20java.lang.String,%20java.lang.String))([String](http://docs.google.com/java/lang/String.html) className, [String](http://docs.google.com/java/lang/String.html) factory, [String](http://docs.google.com/java/lang/String.html) factoryLocation)            Constructs a new reference for an object with class name 'className', and the class name and location of the object's factory. |

| **Method Summary** | |
| --- | --- |
| void | [**add**](http://docs.google.com/javax/naming/Reference.html#add(int,%20javax.naming.RefAddr))(int posn, [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) addr)            Adds an address to the list of addresses at index posn. |
| void | [**add**](http://docs.google.com/javax/naming/Reference.html#add(javax.naming.RefAddr))([RefAddr](http://docs.google.com/javax/naming/RefAddr.html) addr)            Adds an address to the end of the list of addresses. |
| void | [**clear**](http://docs.google.com/javax/naming/Reference.html#clear())()            Deletes all addresses from this reference. |
| [Object](http://docs.google.com/java/lang/Object.html) | [**clone**](http://docs.google.com/javax/naming/Reference.html#clone())()            Makes a copy of this reference using its class name list of addresses, class factory name and class factory location. |
| boolean | [**equals**](http://docs.google.com/javax/naming/Reference.html#equals(java.lang.Object))([Object](http://docs.google.com/java/lang/Object.html) obj)            Determines whether obj is a reference with the same addresses (in same order) as this reference. |
| [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) | [**get**](http://docs.google.com/javax/naming/Reference.html#get(int))(int posn)            Retrieves the address at index posn. |
| [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) | [**get**](http://docs.google.com/javax/naming/Reference.html#get(java.lang.String))([String](http://docs.google.com/java/lang/String.html) addrType)            Retrieves the first address that has the address type 'addrType'. |
| [Enumeration](http://docs.google.com/java/util/Enumeration.html)<[RefAddr](http://docs.google.com/javax/naming/RefAddr.html)> | [**getAll**](http://docs.google.com/javax/naming/Reference.html#getAll())()            Retrieves an enumeration of the addresses in this reference. |
| [String](http://docs.google.com/java/lang/String.html) | [**getClassName**](http://docs.google.com/javax/naming/Reference.html#getClassName())()            Retrieves the class name of the object to which this reference refers. |
| [String](http://docs.google.com/java/lang/String.html) | [**getFactoryClassLocation**](http://docs.google.com/javax/naming/Reference.html#getFactoryClassLocation())()            Retrieves the location of the factory of the object to which this reference refers. |
| [String](http://docs.google.com/java/lang/String.html) | [**getFactoryClassName**](http://docs.google.com/javax/naming/Reference.html#getFactoryClassName())()            Retrieves the class name of the factory of the object to which this reference refers. |
| int | [**hashCode**](http://docs.google.com/javax/naming/Reference.html#hashCode())()            Computes the hash code of this reference. |
| [Object](http://docs.google.com/java/lang/Object.html) | [**remove**](http://docs.google.com/javax/naming/Reference.html#remove(int))(int posn)            Deletes the address at index posn from the list of addresses. |
| int | [**size**](http://docs.google.com/javax/naming/Reference.html#size())()            Retrieves the number of addresses in this reference. |
| [String](http://docs.google.com/java/lang/String.html) | [**toString**](http://docs.google.com/javax/naming/Reference.html#toString())()            Generates the string representation of this reference. |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [wait](http://docs.google.com/java/lang/Object.html#wait()), [wait](http://docs.google.com/java/lang/Object.html#wait(long)), [wait](http://docs.google.com/java/lang/Object.html#wait(long,%20int)) |

| **Field Detail** |
| --- |

### className

protected [String](http://docs.google.com/java/lang/String.html) **className**

Contains the fully-qualified name of the class of the object to which this Reference refers.

**See Also:**[Class.getName()](http://docs.google.com/java/lang/Class.html#getName())

### addrs

protected [Vector](http://docs.google.com/java/util/Vector.html)<[RefAddr](http://docs.google.com/javax/naming/RefAddr.html)> **addrs**

Contains the addresses contained in this Reference. Initialized by constructor.

### classFactory

protected [String](http://docs.google.com/java/lang/String.html) **classFactory**

Contains the name of the factory class for creating an instance of the object to which this Reference refers. Initialized to null.

### classFactoryLocation

protected [String](http://docs.google.com/java/lang/String.html) **classFactoryLocation**

Contains the location of the factory class. Initialized to null.

| **Constructor Detail** |
| --- |

### Reference

public **Reference**([String](http://docs.google.com/java/lang/String.html) className)

Constructs a new reference for an object with class name 'className'. Class factory and class factory location are set to null. The newly created reference contains zero addresses.

**Parameters:**className - The non-null class name of the object to which this reference refers.

### Reference

public **Reference**([String](http://docs.google.com/java/lang/String.html) className,  
 [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) addr)

Constructs a new reference for an object with class name 'className' and an address. Class factory and class factory location are set to null.

**Parameters:**className - The non-null class name of the object to which this reference refers.addr - The non-null address of the object.

### Reference

public **Reference**([String](http://docs.google.com/java/lang/String.html) className,  
 [String](http://docs.google.com/java/lang/String.html) factory,  
 [String](http://docs.google.com/java/lang/String.html) factoryLocation)

Constructs a new reference for an object with class name 'className', and the class name and location of the object's factory.

**Parameters:**className - The non-null class name of the object to which this reference refers.factory - The possibly null class name of the object's factory.factoryLocation - The possibly null location from which to load the factory (e.g. URL)**See Also:**[ObjectFactory](http://docs.google.com/javax/naming/spi/ObjectFactory.html), [NamingManager.getObjectInstance(java.lang.Object, javax.naming.Name, javax.naming.Context, java.util.Hashtable)](http://docs.google.com/javax/naming/spi/NamingManager.html#getObjectInstance(java.lang.Object,%20javax.naming.Name,%20javax.naming.Context,%20java.util.Hashtable))

### Reference

public **Reference**([String](http://docs.google.com/java/lang/String.html) className,  
 [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) addr,  
 [String](http://docs.google.com/java/lang/String.html) factory,  
 [String](http://docs.google.com/java/lang/String.html) factoryLocation)

Constructs a new reference for an object with class name 'className', the class name and location of the object's factory, and the address for the object.

**Parameters:**className - The non-null class name of the object to which this reference refers.factory - The possibly null class name of the object's factory.factoryLocation - The possibly null location from which to load the factory (e.g. URL)addr - The non-null address of the object.**See Also:**[ObjectFactory](http://docs.google.com/javax/naming/spi/ObjectFactory.html), [NamingManager.getObjectInstance(java.lang.Object, javax.naming.Name, javax.naming.Context, java.util.Hashtable)](http://docs.google.com/javax/naming/spi/NamingManager.html#getObjectInstance(java.lang.Object,%20javax.naming.Name,%20javax.naming.Context,%20java.util.Hashtable))

| **Method Detail** |
| --- |

### getClassName

public [String](http://docs.google.com/java/lang/String.html) **getClassName**()

Retrieves the class name of the object to which this reference refers.

**Returns:**The non-null fully-qualified class name of the object. (e.g. "java.lang.String")

### getFactoryClassName

public [String](http://docs.google.com/java/lang/String.html) **getFactoryClassName**()

Retrieves the class name of the factory of the object to which this reference refers.

**Returns:**The possibly null fully-qualified class name of the factory. (e.g. "java.lang.String")

### getFactoryClassLocation

public [String](http://docs.google.com/java/lang/String.html) **getFactoryClassLocation**()

Retrieves the location of the factory of the object to which this reference refers. If it is a codebase, then it is an ordered list of URLs, separated by spaces, listing locations from where the factory class definition should be loaded.

**Returns:**The possibly null string containing the location for loading in the factory's class.

### get

public [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) **get**([String](http://docs.google.com/java/lang/String.html) addrType)

Retrieves the first address that has the address type 'addrType'. String.compareTo() is used to test the equality of the address types.

**Parameters:**addrType - The non-null address type for which to find the address. **Returns:**The address in this reference with address type 'addrType; null if no such address exist.

### get

public [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) **get**(int posn)

Retrieves the address at index posn.

**Parameters:**posn - The index of the address to retrieve. **Returns:**The address at the 0-based index posn. It must be in the range [0,getAddressCount()). **Throws:** [ArrayIndexOutOfBoundsException](http://docs.google.com/java/lang/ArrayIndexOutOfBoundsException.html) - If posn not in the specified range.

### getAll

public [Enumeration](http://docs.google.com/java/util/Enumeration.html)<[RefAddr](http://docs.google.com/javax/naming/RefAddr.html)> **getAll**()

Retrieves an enumeration of the addresses in this reference. When addresses are added, changed or removed from this reference, its effects on this enumeration are undefined.

**Returns:**An non-null enumeration of the addresses (RefAddr) in this reference. If this reference has zero addresses, an enumeration with zero elements is returned.

### size

public int **size**()

Retrieves the number of addresses in this reference.

**Returns:**The nonnegative number of addresses in this reference.

### add

public void **add**([RefAddr](http://docs.google.com/javax/naming/RefAddr.html) addr)

Adds an address to the end of the list of addresses.

**Parameters:**addr - The non-null address to add.

### add

public void **add**(int posn,  
 [RefAddr](http://docs.google.com/javax/naming/RefAddr.html) addr)

Adds an address to the list of addresses at index posn. All addresses at index posn or greater are shifted up the list by one (away from index 0).

**Parameters:**posn - The 0-based index of the list to insert addr.addr - The non-null address to add. **Throws:** [ArrayIndexOutOfBoundsException](http://docs.google.com/java/lang/ArrayIndexOutOfBoundsException.html) - If posn not in the specified range.

### remove

public [Object](http://docs.google.com/java/lang/Object.html) **remove**(int posn)

Deletes the address at index posn from the list of addresses. All addresses at index greater than posn are shifted down the list by one (towards index 0).

**Parameters:**posn - The 0-based index of in address to delete. **Returns:**The address removed. **Throws:** [ArrayIndexOutOfBoundsException](http://docs.google.com/java/lang/ArrayIndexOutOfBoundsException.html) - If posn not in the specified range.

### clear

public void **clear**()

Deletes all addresses from this reference.

### equals

public boolean **equals**([Object](http://docs.google.com/java/lang/Object.html) obj)

Determines whether obj is a reference with the same addresses (in same order) as this reference. The addresses are checked using RefAddr.equals(). In addition to having the same addresses, the Reference also needs to have the same class name as this reference. The class factory and class factory location are not checked. If obj is null or not an instance of Reference, null is returned.

**Overrides:**[equals](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)) in class [Object](http://docs.google.com/java/lang/Object.html) **Parameters:**obj - The possibly null object to check. **Returns:**true if obj is equal to this reference; false otherwise.**See Also:**[Object.hashCode()](http://docs.google.com/java/lang/Object.html#hashCode()), [Hashtable](http://docs.google.com/java/util/Hashtable.html)

### hashCode

public int **hashCode**()

Computes the hash code of this reference. The hash code is the sum of the hash code of its addresses.

**Overrides:**[hashCode](http://docs.google.com/java/lang/Object.html#hashCode()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**A hash code of this reference as an int.**See Also:**[Object.equals(java.lang.Object)](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)), [Hashtable](http://docs.google.com/java/util/Hashtable.html)

### toString

public [String](http://docs.google.com/java/lang/String.html) **toString**()

Generates the string representation of this reference. The string consists of the class name to which this reference refers, and the string representation of each of its addresses. This representation is intended for display only and not to be parsed.

**Overrides:**[toString](http://docs.google.com/java/lang/Object.html#toString()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**The non-null string representation of this reference.

### clone

public [Object](http://docs.google.com/java/lang/Object.html) **clone**()

Makes a copy of this reference using its class name list of addresses, class factory name and class factory location. Changes to the newly created copy does not affect this Reference and vice versa.

**Overrides:**[clone](http://docs.google.com/java/lang/Object.html#clone()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**a clone of this instance.**See Also:**[Cloneable](http://docs.google.com/java/lang/Cloneable.html)

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Reference.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/javax/naming/RefAddr.html)   [**NEXT CLASS**](http://docs.google.com/javax/naming/Referenceable.html) | [**FRAMES**](http://docs.google.com/index.html?javax/naming/Reference.html)    [**NO FRAMES**](http://docs.google.com/Reference.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#3znysh7) | [CONSTR](#2et92p0) | [METHOD](#tyjcwt) | DETAIL: [FIELD](#1t3h5sf) | [CONSTR](#26in1rg) | [METHOD](#2jxsxqh) |

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For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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